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ABSTRACT

The critical thinking curriculum used in the four-year business degree program at the Auckland Institute of Technology Faculty of Commerce in New Zealand is described. The design of the business program is modeled on the authors' view of critical thinking as concerned with the intellectual maturity of the whole person. Key intellectual standards modeled in critical thought include active engagement with ideas; outputs of thought which are coherent, clear and consistent; demonstrated competency in technical reasoning; cogency of thought; and intellectual honesty. The design of the Auckland business degree program is based on a stated profile of the qualities and capabilities desired in graduates of the program, including a broad understanding of business, specific personal and professional capabilities, and competencies in specialist areas. Interdisciplinary study, cooperative education, the development of critical thinking capabilities in both general and particular contexts, metacognitive approaches to learning, the use of teachers as facilitators of learning in small group interactions, and strategies for assessment are addressed as components of the program's design. (Contains 19 references.) (PRW)

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AUCKLAND INSTITUTE OF TECHNOLOGY
Te Whare Takiura O Tamaki Makau Rau
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Jenny Bygrave & Philippa Gerbic

PART 1 INTRODUCTION

ABSTRACT

One of the greatest challenges for teachers is that of developing and enacting a curriculum which encourages critical thinking in students. This presentation seeks to illustrate and describe our approach in New Zealand in respect of a critical thinking curriculum for a 4 year degree in business - its aims and philosophy, the thinking behind it and how it is enacted.

We address selected programme design issues at a broad level, particularly the use of graduate profiles/outcomes and their achievement through teaching, learning and assessment strategies. In particular we focus on interdisciplinary study and co-operative education.

Our practice in the programme will be discussed in the light of current critical thinking issues including general and contextual critical thinking, developing a metacognitive approach and encouraging critical thinking dispositions.

OUR VIEW OF CRITICAL THINKING

Critical thinking is concerned with attaining intellectual maturity. It involves the whole person and thus is an interplay of attitudes, emotions, dispositions, values, abilities, knowledge and context. It is purposeful, seeking, demonstrating and testing of understanding.

Critical thinking is the development, challenging, evaluation and defence of positions, arguments, judgements and beliefs which demonstrates personal responsibility, careful reasoning, openness, understanding of and placing in context, appreciation and fair treatment of different values and perspectives from acknowledgement of oneself and awareness of how that affects one's thinking.

It involves understanding and challenging assumptions and values, envisaging alternatives, evaluating and making judgements. It seeks to place concepts, ideas, experience, knowledge and thinking into a wider frame of reference, ordering and making sense of them, aiming for clarity coherency, correctness and the identification of contradiction and error.

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It requires realisation that in taking a position it must be defensible but may have to be yielded at some time as understanding changes, and requires openness to that possibility occurring.

Emotions are important to our view of critical thinking because of their ability to affect thinking through fear, vulnerability, lack of confidence, enthusiasm, anger etc. Sustained critical thinking requires enthusiasm, passion, confidence and engagement to persevere and seek understanding. There is also the need to be conscious, stand back from and examine our own emotional response and reactions to experiences, ideas and problems. These are issues of subjectivity and intellectual honesty.

The triachic model of dispositions proposed by Perkins, Jay and Tishman (1993) of inclinations, sensitivities and abilities appeals because it links habits of the mind with sensitivity to situation and context and then to the ability to do something. This analysis moves critical thinking from mechanical execution of skills to the endeavour of a whole person. Its weakness is the lack of attention to emotional and ethical aspects, the self knowledge and awareness involved in coping with ambiguity, greyness, conflicting values and ethical dilemmas.

A key ability is self surveillance and scrutiny: reflection. This we understand to involve awareness of personal values, responses and thinking as well as mindful organising, monitoring, critique and modification of one's own thinking. Reflectiveness is the 'turbo charger' or the orchestral conductor which provides added power and cohesion to thinking and organises critical thinking.

Critical thinking is related to the context of particular knowledge domains and situations. It requires to be tested against the forms of communication, tests of truth and evidence, rules and methodologies of disciplines and fields. It involves the flexible use of other perspectives and frameworks as a base for challenging and testing thinking. It should include consideration of political, psychological, social and historical forces.

This concept of critical thinking owes much to the work of Ennis (1987) in relation to dispositions and abilities, Perkins, Jay and Tishman (1993) and their triachic model, Brookfield (1987) and Barnett (1992 and 1994) and the discussions on context and domains from Perkins and Salomon (1989).

Key intellectual standards derived from our view of critical thinking are described below.

1. **Active Creative Thinking**

   A fundamental requirement is that the thinker must engage, react and interact with ideas. This requires a degree of passionate but caring scepticism and a readiness to evaluate the issue from other perspectives. The output is therefore a synthesis arising from active involvement of the thinker and the subsequent development and testing of their own ideas.

2. **Outputs which are both Coherent and Clear**

For us, coherency means addressing the issues in a manner that is structured and sequential. It also needs a degree of consistency in terms of the positions taken, attitudes and demonstration of understanding. Clarity of thinking supports and advances coherency, and ultimately the thinking outputs - through analysis, identification, definition, use of appropriate vocabulary and conventions, managing ambiguity and contradiction and addressing the challenge of complexity and greyness in preference to simplification and generalisation.

3. **Evidence of Thinking/Reasoning Abilities**

Good critical thinking displays competent application of a wide range of technical reasoning abilities - for example, giving reasons, separating fact from opinion, dealing with assumptions, analysis, justification, identifying what is relevant, getting to the heart of the matter, use of analogy, recognising bias and dealing with arguments against the point.

4. **Cogency**

Critical thinking must be convincing in the sense that it is sited within appropriate patterns schemata and frameworks, based around careful and reflective reasoning and judgement, distinguishes the relevant from the irrelevant, is connected with current thinking in a manner that is deep but broad in its relation to other thinking, robust in its justification and presentation of evidence, adept at responding to any challenge.

5. **Intellectual Honesty**

This has both an external and internal dimension. It requires the successful defence of a position and/or the willingness to change in the face of new arguments or evidence. The foundation of this is the recognition, internally, of one's own subjective attachment to certain values and perspectives.

We believe that some of these standards are generic i.e. they do not change as the context does. Others derive their validity from their context i.e. from the principles and practices, methodologies and tools, values and worldview of that particular domain or profession.

This is particularly the case in respect of thinking and reasoning abilities and cogency. In our domain, which is law, reasoning and cogency are shaped and determined by complex analysis, selection, sorting and weighing of precedent, legislation, judicial and governmental

policies. These go to the heart and essence of legal thinking and must be included in any discussion of standards.

PART 2 BACHELOR OF BUSINESS

1.0 How is critical thinking developed in our programme?

In developing this programme we began with a graduate profile as a basis for the design of the whole programme including specialisations. In essence this consisted of a statement of outcomes for graduating students. The key elements were a broad understanding of business, personal and professional capabilities and specialist study. This was stated as follows:

1.1 *Aims and graduate profile*

The BBus is a four year/eight semester 480 credit business degree which aims to prepare graduates for the demands of professional practice.

BBus graduates will:

- be confident learners who know how to learn and are able to adapt and apply the process of learning to any situation
- have a broad understanding of business and the relationships between different disciplines
- have an understanding of the political and social environment in which business operates
- have undertaken specialist study in one, or typically two, specialist fields
- be prepared for professional practice
- have completed a Co-operative education placement
- have the following capabilities:
  - application of knowledge
  - critical thinking
  - conceptual thinking
  - teamwork and communication
  - problem-solving
  - technical competence
- be competent in the use of key skills:
  - communication
  - use of information technology
  - research

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These are achieved through:

1. **Interdisciplinary Study**
   Students achieve depth of understanding and appreciation of the complexities of business through interdisciplinary modules where the study of business disciplines is interwoven with development of capabilities. Interdisciplinary study assists the development of higher order. Thinking skills in analysis, synthesis, critical thinking and problem solving, by requiring students to view problems and issues from different discipline perspectives.

2. **Professional Studies**
   In professional studies graduates develop depth of understanding, professional capabilities and technical competence in their chosen specialist field. Students make choices about their specialist study from 8 majors: International Business, Advertising, Marketing, Tourism, Computer Information Systems, Accounting, Management and Economics.

3. **Co-operative Education**
   Students apply their learning in a work placement where they carry out professional tasks, experience the business environment and test out in a practical way the relevance of their studies to business practice.

4. **Integration of Capabilities including Critical Thinking into the Curriculum**
   The development of capabilities is stated in the learning outcomes for each module in the programme, and the programme for each module must demonstrate how those capabilities are learned taught and assessed in the context of the discipline knowledge.

5. **Teaching Learning and Assessment Strategies**
   Most teaching in the BBus is in small groups of 20-25 students with the teacher acting as facilitator of learning. The methods used in the programme are designed to assist students to develop the dispositions and abilities for lifelong learning and achieve the graduate outcomes in knowledge, understanding and capabilities. Teaching is interactive involving methods such as problem and inquiry based approaches, students presenting seminars, learning contracts, self directed learning, research projects, case studies and panel discussions.

   Assessment in the BBus is actively focused on developing and measuring student capabilities, knowledge and understanding. Students are informed of the outcomes expected including standards for achievement.

In each module there is a balance between examinations and assignments. Assignments range from essays to major research projects. Each assessment instrument must demonstrate how it measures capabilities such as critical thinking, problem solving in the context of the discipline knowledge being learned.

1.2 *Rationale*

The traditional emphasis in the teaching of business, has been a didactic approach in which knowledge, packaged into discrete subjects, is imparted to students without emphasis on developing a general picture of how business operates or the development of the wide range of capabilities required of business professionals. This may have served business in the past but in developing the BBus we aimed to meet the needs of a complex, constantly changing global business environment.

This involved designing a programme which developed two sets of complementary competencies needed by graduates. First are intellectual, interpersonal and professional capabilities. These include the ability to solve problems in ambiguous and unfamiliar contexts, excellent oral and written communication, team work and interpersonal skills and high level of critical thinking and conceptual ability. The second strand requires a broad education, an understanding of national and global economic, political and social issues, of the way organisations work and change and the ways that people interact within them, as a basis for general and specialist knowledge and competency. Together, these should equip business professionals with the skills and dispositions to be capable and confident learners over the course of their professional careers, Accounting Education Change Commission (1990), Bedford and Shenkir (1987).

The BBus in its design recognises that the development of knowledge and capabilities does not happen by chance but requires a carefully structured education programme built on principles of learning and teaching.

1.3 *Philosophy*

The BBus is designed upon the following principles:

Interdisciplinary study assists the development of the ability to analyse, draw analogies and synthesise information from a range of perspectives[1]. There is evidence that students who

[1] Boyer, EI (1990) *Scholarship Revisited. Priorities of the Professoriate* Carnegie Foundation, New Jersey, Princeton

can make links between different areas of knowledge will have a rich understanding to bring to their professional practice, Boyer (1990), Barnett (1992).

Students are most likely to be successful in transferring capabilities (such as critical thinking, communication, team work and problem solving) to work contexts when development of these capabilities has been learned together with the appropriate discipline and professional knowledge and linked to and where possible experienced in contexts as close as possible to the work environment, Blagg et al (1993), Ashworth and Saxton (1992).

Learning is promoted when students ask their own questions, discover and evaluate the answers, frame and solve problems and work collaboratively, within a structure which enables them to progress from straightforward tasks to complex, ill-defined situations Schon (1983, 1990), Boud and Feletti (1992), Coles (1992), Eraut (1992).

Opportunities to experience the professional environment are invaluable in enabling students to relate learning in the classroom to the demands of practice and to develop skills in independent learning, Boud (1993), Eraut (1992), Schon (1983, 1990).

Students learn best when they are well informed about the processes of learning and assessment, see the relevance of their learning and understand the outcomes and standards expected of them, Ramsden (1988), Saljo (1979), Entwistle (1988).

Long term, successful implementation of active learning strategies depends upon a coherent and consistently applied programme philosophy, Woods (1994), Boud and Feletti (1991), Fullan (1993).

2.0 Interdisciplinary Study

2.1 *Description*

In the first 18 months of BBus study, students complete 3 semesters (13 weeks each) of interdisciplinary study. The modules seek to develop an understanding of the real world of business where disciplines do not operate in isolation but are part of a larger business or organisational system which in situated within New Zealand but also is a part many international communities. Students therefore develop the ability to think critically in various disciplines, but also in terms of

the relationships, links and differences between disciplines. This demands attention to the development of critical thinking dispositions - which are enhanced and supported by the programme's explicit focus on capability development (see above).

2.2 *Rationale*

While the graduate profile seeks to develop business practitioners in one or more specialisations, increasing commentary indicates that an important capability for a specialist is being able to see their role in relation to that of other roles or functions in business - both in terms of being able to work with other discipline specialists and identify circumstances in which their input is necessary or enhancing. This means not only having some kind of cognitive map of other disciplines but also a positive and constructive view of their role and value in an organisation.

An interdisciplinary focus is not a replacement for the development of discipline capability. Critical thinking in the disciplines is extremely important because good interdisciplinary thinking develops from a foundation of understanding and active engagement with the component disciplines. These are needed to provide insight into the issue, depth of analysis, and cogency in terms of outputs. The latter is particularly important because while interdisciplinary thinking provides a number of different perspectives on an issue, each perspective still needs to accord with the conventions, values and methodology of its contributing discipline. While interdisciplinary thinking can be viewed as more than the sum of its component parts, and therefore of increased value, a significant part of its rigor and quality relies on critical thinking through its discipline components. Without the discipline anchors, thinking could become shallow and superficial.

2.3 *Curriculum Structure: Aims and Learning Outcomes*

The integrated studies modules seek to develop in students

- capabilities in the discipline fundamentals for business
- an overview of business world - see the business world as a whole, consisting of numerous parts which were not separate but overlapping and interrelated
- an interdisciplinary/multidisciplinary perspective i.e. the ability to see and issue or problem from more than one discipline perspective
- capabilities as well as understanding/knowledge i.e. problem solving, teamwork, communication, critical thinking etc.

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- confident learners i.e. independent learners, taking responsibility for their own learning, and able to monitor and review their own learning.

Each of the three modules has a different focus and is designed to develop different discipline capabilities. In the first semester, students look at the broad context within which business operates by examining New Zealand as a social community through the perspectives of law, sociology and politics, economics and communications. In the second module, students look at the impact of information on organisations and develop capabilities in information technology, accounting, statistics and marketing. In the third semester, students focus on organisations and look at their external and internal influences through legal, accounting, marketing and management perspectives.

2.4 *Critical Thinking in an Interdisciplinary Programme*

Our observation suggests that the development of a holistic or interdisciplinary perspective needs far more than application of critical thinking abilities. Perkins Jay and Tishman's dispositional approach(Perkins, Jay and Tishman 1993) recognises the significance of other factors and adds the dimensions of inclination and sensitivity.

Inclination (a person's felt tendency towards a behaviour p4) represents itself in the programme through a student's leaning, interest or commitment to think in an interdisciplinary fashion. This is not often a difficulty in the case of new students coming into the programme, perhaps because they have chosen to enrol into a interdisciplinary programme. However in the case of students transferring into the programme (with credit) there is often a lack of inclination which makes the development of their interdisciplinary thinking precarious. For these students, a "grieving process" (for single discipline oriented study, and/or less thinking approaches to learning?) needs to be completed before inclination can develop. It is interesting to note that mature working students demonstrate more inclination towards interdisciplinary thinking because they see the programme as a microcosm of their real business world and this kind of thinking helps them to make sense of it. Given a long tradition of discipline "pigeon holing" in New Zealand secondary and tertiary programmes, the development of inclination is vital. An issue for the programme then, is whether teaching learning strategies can help to develop this "inclination".

Sensitivity (a person's alertness to occasion - p4) in an interdisciplinary programme, can refer to sensitivity to the role and contribution of different disciplines. This is a challenging area for students and relies on their development of critical

thinking dispositions/abilities in component disciplines. Discipline concepts, values and methodologies need to be in place form a databank from which students may draw relevant thinking. However, it is the actual process of cue recognition or establishing this alertness that is demanding. While there are some models for students in the form of the curriculum structure and class activities, it is a significant developmental issue. Despite a programme culture which values integration, and seeks to model it, the development of interdisciplinary sensitivity in students still needs to be explicitly addressed through appropriate teaching/learning and assessment strategies. However, this has parallels - in developing problem solving ability, sensitivity to cues in the problem and likely solutions is a key part of the student's learning progression and generally in relation to moving from novice to expert.

Some kinds of critical thinking receive special emphasis in an interdisciplinary programme.

The disposition to be broad and adventurous, (Perkins Jay and Tishman p7) and therefore courageous is one of these. The inclination to probe alternative points of view, to tinker with boundaries, play with new ideas and explore multiple interpretations are essential in interdisciplinary critical thinking. This often means moving from where one is comfortable or more deeply attached, either cognitively or emotionally - for example "I am good at accounting" or "I agree with an economic rather than legal approach to wealth distribution" to consideration of the less familiar or attractive.

Discipline parochialism, bias and dogmatism can interfere with the kind of flexibility that is needed, so an awareness of the presence of these is a the key sensitivity - not only for students but also for those who teach on the programme. With a focus on multiplicity and breadth, abilities like brainstorming for the creation of discipline approaches and solutions become important. Rather than rejecting without adequate justification, it is necessary to ensure adequate consideration and then to evaluate by determining discipline contributions or strengths with regard to an issue, or recognising their weaknesses or limitations.

The disposition to be metacognitive (p8) also receives attention. Given that it focuses on self surveillance, scrutiny and review of one's own mental processes, the disposition itself may be a generic, although the thinking may be about one's critical thinking in a particular field. In an interdisciplinary programme, it can become a significant unifying factor or process, because it operates independently from any discipline context, and from discussion with discipline teams, it seems that where its value is accepted that, its practice is not context sensitive.

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However, a major issue is its development in the programme. Its acceptance and practice appears to be related to student perceptions about its benefit and general application. For working students this is not a difficulty but the disposition and sensitivity required impel its use is more problematic. In the case of students beginning degree study after completing school, there is more doubt about its relevance and value, and therefore more reluctance to engage constructively in metacognitive activity.

Developing critical thinking in an interdisciplinary programme also requires attention to identifying particular kinds of thinking and their ordering to create a progression of learning. Examples include interdisciplinary connection and dialogic and dialectic thinking. (Paul 1986). All of these kinds of thinking provide a framework for students to address to address interdisciplinary problems. The framework is important because of the commonly diverse conventions, methodologies and values of different disciplines, and the experience of the students to date, which mostly relate to discrete consideration.

From a learning point of view, each of these kinds of thinking varies in complexity. They can be viewed as a hierarchy of learning or development where students begin by

- identifying and bringing relevant views of one discipline and placing them next to those of another discipline in the context of a problem or issue, and
- discussing and exchanging views on the different approaches that various discipline methodologies or values may bring to bear , then
- challenging each view through assessment of its strengths and weaknesses and coming to a conclusion.

Throughout these activities the whole person is involved. This includes their emotions and their ethical values. Thinking on one's own creates demands for perseverance, confidence in self and commitment to the task at hand. However, dialogic and dialectic processes, through their involvement with others, challenge the critical thinker further, when the thinking is subjected to the coherency, reasoning, cogency standards of others. This may expose the subjectivity or discipline egocentrism (Paul 1986) of the thinker, and may require a change of position in the face of new arguments or evidence. This is especially so in interdisciplinary thinking because there is often no common ground and in fact, disciplines may have diametrically opposing values. Where students are involved in a team project, this is one of their most demanding tasks.

2.5 *How is Interdisciplinary Critical Thinking Developed?*

The student's learning experience is moulded by the following:

An Interdisciplinary Structure

The programme is organised around (usually weekly) interdisciplinary themes which include discipline sessions which develop critical thinking capabilities in the disciplines, and "group sessions" which focus on interdisciplinary development, the process of critical thinking, developing a metacognitive approach and autonomous learning.

A Learning Environment which Explicitly Values Interdisciplinary and Critical Thinking

The programme is delivered by a discrete academic group. This has enabled it to develop its own culture, values and language which are communicated, and modelled by the teaching staff. Critical thinking (both disciplinary and interdisciplinary) is explicitly addressed in the teaching programme. It is also implicitly a part of the fabric of the Integrated Studies and is absorbed by students through observation and imitation. A critical and interdisciplinary thinking disposition is therefore gradually internalised by students through an enculturation process (Seely Brown et al 1989)

Critical Thinking is Developed in Context

While the research is not conclusive, there are some strong indications that cognitive skills are learnt most effectively in the context of a domain. (Perkins and Salmon 1989) Teaching within the integrated studies portion of the programme therefore integrates the development of understanding within the discipline with critical thinking and problem solving in that area. When judging the standard of critical thinking, it is generally the values of the domain that are important for establishing performance, particularly with regard to thinking and reasoning abilities and cogency.

Discipline classes often include explicit discussion of the critical thinking process and what it means to "think like a lawyer". The process is discussed, modelled, practised, scrutinised and reflected on. Learning in this way includes authentic (as is possible) classroom and assessment activities which give students an opportunity to develop and use the critical thinking tools of the domain (Seely Brown et al 1989). For example, case studies, projects or problems which address current issues in business practice.

This approach to critical thinking also avoids issues relating to the transferability or otherwise of skills acquired generically. It also provokes more thoughtful students to compare

approaches across disciplines and on occasion, to transfer some aspect of a critical thinking activity from one domain to another. Having to "step inside the shoes" of a variety of disciplines and think critically in them gives our students a pool of discipline experiences. These provide a foundation for the development of broad business understanding and a disposition towards working professionally with other disciplines - now recognised as an essential requirement of a competent business practitioner .

Interdisciplinary critical thinking is addressed in timetabled "group" sessions. These will include a number of activities designed to encourage interdisciplinary critical thinking. There might be a review of the week's learning activities with analysis of the connections (or otherwise) between discipline contributions, or their difference of approach. Mapping exercises and discussion of multidisciplinary readings are also used. Interdisciplinary connections are also discussed in discipline sessions where the teacher might introduce their discipline concept or theory and then explicitly link it to the theme for the week and/or discuss its difference from another discipline's view.

Learning and Metacognition are Explicitly Addressed

Students focus on learning as an activity which occurs not only in the classroom but also away from the teacher and the programme i.e. lifelong learning. Students are encouraged to take responsibility for their own thinking and learning and to monitor, reflect and scrutinise this process. Frameworks to assist students to develop this kind of disposition and assess their own performance are provided and discussed in class. This facilitates discussion about the emotive aspects of learning - fear of failing, frustration through perceived lack of progress and doubts about ability.

Small Classes

In order to promote student centred learning, students are assigned to classes of 25 for the duration of the semester. This enables active learning strategies to be used to develop critical thinking - for example, case study discussion, presentation, critique justification of thinking, group work. Small classes allow for a closer relationship between student and teacher. This more personal contact is a major factor in the enculturation process and facilitates open discussion about learning issues.

The Role of the Teacher

Teachers model a critical thinking approach in their disciplines and in interdisciplinary discussion. An emphasis on student centred and active learning means that the teacher has to provoke and manage learning in and out of the classroom, to facilitate, question, challenge, to provide a framework and standards for that issue, but not "the answer". To develop the disposition to think beyond a single discipline, teachers must engage in that kind of thinking themselves and learn to ask new questions of students like "how will this change in the law impact on the management policy, and how will it affect cashflows?" Within the programme a special teaching role has been created to foster this kind of thinking on students.

Assessment

Assessment in Integrated Studies is founded on the following principles:

Assessment tasks are connected to the real world, involving critical thinking revolving around topics or activities which are of current interest to the business community.

Deep as opposed to surface learning should occur in assessment.

Assessment tasks have an interdisciplinary focus.

Marking and grade criteria include intellectual standards and are clearly communicated to the students.

Students are encouraged to scrutinise their own performance.

Students, where possible, should be given an opportunity to develop their own areas of interest within a module.

An example of these principles in operation is the Business Development Plan, produced by Integrated Module 3 students, working in interdisciplinary teams. Having chosen their own business idea, they then establish their business identity and goals, work to identify the legal, accounting, marketing, management, economic and information technology issues that their business will need to address, to develop appropriate strategies and action plans. In effect this is an enormous problem which requires critical thinking in the component disciplines, analysis of the interrelationship between the different disciplines for the business idea and team decision making in the face of different or competing discipline values - will the business be driven by a management, marketing or accounting philosophy?

At the same time, students must continuously monitor the quality of their team's thinking and this provides a good opportunity for developing peer assessment skills within their group. The grade criteria are available as a resource for this activity. At an early stage, the team is required to present their thinking and reasoning to the entire class, which (formatively) with the teachers (summatively) gives feedback on its strengths and

weaknesses. The group (summatively) assesses each person's individual contribution to the group effort, using criteria that the team or class has generated through discussion.

Course Documentation

Students receive a Module Handbook and an Assessment Handbook which communicates the programme aims and philosophy, learning outcomes, the assessment programme, marking and grade criteria, the weekly programme and reading materials.

2.6 *Issues for the Future*

Intellectual Standards.

We have criteria for determining the presence of critical thinking in the disciplines. These have been adapted for interdisciplinary thinking. This practice needs further evaluation.

We also have determined grade standards for assessment. In interdisciplinary study this raises special issues. This kind of thinking is very challenging because it requires students to get on top of critical thinking in the disciplines and then to engage in a further level of critical thinking which is required to develop that broad interdisciplinary view. This kind of thinking generally appears in postgraduate programmes. Our students do this in their three semesters of degree level study.

Balance

Time spent on interdisciplinary thinking means less time on disciplines. Internal and external expectations need to be adjusted for this and this impacts on standards. This means a commitment to valuing interdisciplinary perspectives. It also means balancing between critical thinking in the disciplines and at an interdisciplinary level.

Staff Development

An approach to critical thinking that sites such activity in a discipline removes any perceived threat to teacher's competence which may arise when critical thinking is developed away from discipline learning. The real challenge in the Integrated Studies programme is developing interdisciplinary understanding, a sensitivity to discipline parochialism, and teaching learning and assessment strategies that will develop critical thinking in our students, both at a discipline and interdisciplinary level.

3.0 Co-operative Education

3.1 Description

In the third year of this four year programme each student completes a co-operative education module involving a 13 week placement or internship in a business organisation. The student develops with their employer and the institute a learning contract which specifies tasks to be completed for the employer, the standards to be achieved and the student's own learning goals. Each student is assessed through a written report, oral presentation, employer's report and critical thinking interview. An academic supervisor who is a specialist in a field appropriate to the placement is allocated to each student.

3.2 Rationale

The BBus aims to develop students as life long learners. Co-operative education or internship enhances that development. It helps students to understand that work experience may be unreflective day to day undertaking of a work role or it can be reflected on experience and a valuable part of their learning. Our aim in co-op is to help students use discipline concepts and examples to make sense of their professional work experiences. They develop frameworks for understanding professional practice and their own roles in the workplace.

Placement in a professional situation as part of their learning provides a relatively safe, supervised environment where students have to think through situations, analyse carefully and systematically what is going on, find ways to clarify, seek evidence, test and check on their thinking as a basis for action. They have to be flexible and adaptable in fitting into an organisation to complete their tasks but also must develop an ability to stand back and analyse that organisation in order to write their reports. They have to demonstrate their ability to monitor their own performance, cope with ambiguity and the pragmatic demands of the professional work environment.

Co-operative education reinforces the need for an interdisciplinary approach to business issues which students began to develop in the first three semesters of the degree. In real business situations students see how drawing upon different disciplines and perspectives enables them to appreciate complexity and to avoid oversimplification. It demands openness to other perspectives and ideas together with the development of critical ability to evaluate and judge those ideas and strategies as a basis for taking decisions.

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3.3 Curriculum Structure: Aims and Learning Outcomes

In addition to the student's personal learning goals set out in the learning contract students will:

- demonstrate a critical understanding of the nature, structure and dynamics of the workplace in which they have undertaken their placement.
- critically analyse and reflect on the co-operative experience
- demonstrate critical thinking skills in the context of a specific situation encountered during the co-operative education placement
- demonstrate oral presentation skills appropriate to the business context in which they have been operating

Critical thinking in Co-operative Education

To be successful in their professional roles graduates must have developed capabilities which bring together knowledge in the domain with habits of thinking and approaching situations, alertness to issues and context, the ability to use their thinking as a basis for taking decisions and a propensity for self surveillance and monitoring.

Ennis' taxonomy (1987, 9-26) of dispositions and abilities and Perkins, Jay and Tishman's model of seven dispositions (1993) with their linked inclinations, sensitivities and abilities have provided a basis for developing outcomes, assessment, criteria and standards for the module.

In co-op students are functioning as professionals in situations we as teachers cannot predict. They need the attitudes, capacities and strength to search for and engage openly and flexibly with new information, ideas and experiences. This involves taking a position but being prepared to yield it in the face of new evidence and dispositions to be broad and adventurous, Perkins, Jay and Tishman (1993, 7) and open-minded, Ennis (1987).

Students must be aware of their thinking and continuously practise self monitoring. This is usually phrased as the disposition to be metacognitive Perkins, Jay and Tishman (1993, 8), mindfulness, reflection and self-critique Barnett (1994, 185).

Students must develop deep understanding of business disciplines. This depends upon the ability to be critical. There is no understanding where there is blindness to error, omission, weaknesses and the possibility of alternative positions. This requires learning in which students are inculcated in the standards of the field and encouraged to engage in their own evaluation of what they encounter, keep their own critical distance from their learning and experiences, develop the confidence to form their own concepts and ideas, take a position and defend it. They should have a sense that their own thinking matters and be subjected to the same standards they would expect of any professional Barnett (1994, 85) (Paul 1993). This links the dispositions

related to being intellectually careful with curiosity, seeking understanding and reasoning Perkins, Jay and Tishman (1993, 7,8).

In co-op students examine how critical thinking involves their emotions as well as their rational thinking. We want students to be aware of and monitor their emotional responses in order to be able to stand apart from them, to acknowledge the need to deal with feelings of fear, vulnerability, lack of confidence and anger.

Co-op also requires students to deal with conflicting values and ethical dilemmas, to cope with ambiguity and greyness. These are practical issues where critical thinking dispositions, abilities and intellectual standards provide a basis for action.

How

Student experience

Learning and teaching methods in co-op reinforce the development of critical thinking dispositions including abilities.

All students attend workshops before the work placement begins on writing a curricular vitae, the purpose and philosophy of co-op, assessment, types of placement. In addition there is an orientation for 1 week before the placement begins.

Through the learning contract students define a large portion of the curriculum in co-op. They specify the learning outcomes, how they will be achieved and the evidence and standards to be used in assessment of the written report. Students take active responsibility for their learning. The academic supervisor is a guide not the director of that learning.

The co-op placement is in a professional situation within the student's area of specialist study. They work with other professionals in that field and their academic supervisor is also a specialist in the field. In all aspects of their work and in the preparation of the learning contract, written report, and oral presentation students are being enculturated in the profession.

The student carries out the work assignment and prepares for assessment. In that they receive assistance from the employer and their academic supervisor. The programme also provides for students to attend at the Institute for a feedback session in week 3, focus session in week 6, assessment planning session in week 9 and oral presentation workshop in week 11.

Role of Teacher

The academic supervisor acts as a facilitator of student learning and mentor in the professional situation. It is the student on the job who has to do the work and cope with the work situation. The thinking of the supervisor cannot be a substitute for their own. S/he gives assistance to the student through regular discussions, visits and contact, critical thinking practice exercises, and development of the learning contract.

Academic supervisors model a critical thinking approach in their discussions and dialogue with students, challenging assumptions, prompting self scrutiny and reflection and helping students to examine their actions and decisions against appropriate intellectual criteria. As professionals in the field they have a role in inducting students into the professional roles they are undertaking, helping them understand and apply professional standards to their thinking and work.

Assessment

Formative

The module provides many opportunities for students to practise and prepare for assessment. Under the supervision arrangement there is regular informal dialogue and feedback between the student and supervisor. Students are encouraged to keep a journal of their experiences to assist in development of their reflection on their practice and to provide a basis for the critical thinking interview.

In preparation for the critical thinking interview students are given formal practice in two case studies. The first is supplied to the student in the handbook, the second is written by the student and together with the student's analysis of the situation is discussed with the supervisor. The written report is staged to give students opportunities to check out their thinking and presentation with their supervisor. For each assessment task students are required to complete a self appraisal which although it does not contribute to the students grade is intended to assist in the development of their self critique.

Summative

Each student completes a critical thinking interview for which full information on the requirements, role of student and supervisor, guidelines for assessment and criteria are provided. The student's analysis is assessed by two lecturers, the academic supervisor and another experienced supervisor. the criteria and standards are based upon Ennis' dispositions and abilities (1987). They require students to articulate their thinking, reasons, evidence, assumptions, alternative points of view. They include consideration of tendencies to engage and persist in critical thinking behaviours and sensitivity of students to situations and issues which require the use of critical thinking abilities.
Intellectual standards are incorporated into the marking criteria.

Course documentation

To ensure that each student has full information about the module and expectations of them, they receive a Student handbook. It sets out the philosophy of the programme, rationale, aims and outcomes, information on developing the learning contract, assessment, marking criteria and standards.

Employers receive a Handbook designed to assist each employer supervisor in the supervision, learning contract development and assessment of the student.

Academic supervisors have the handbooks, additional material on critical thinking and assessment, receive training and are allocated experienced supervisors as mentors.

4.0 Conclusion

In the BBus there is an attempt to pay systematic attention to developing critical thinking dispositions and abilities in discipline and interdisciplinary contexts. Fundamental to delivering that programme as intended is the culture of the faculty. That culture impacts on the way we treat students and the way we go about our business as teachers.

Critical thinking is taking responsibility for your own thinking and being self monitoring. We encourage and support students in that development and trust that they will be motivated to meet the standards and achieve the graduate outcomes. That requires a consistent approach. This is undermined if students are told that they should take responsibility for themselves and are then treated in a way which indicates that the teacher believes otherwise. We understand that teachers have an important role to support that disposition, not to cynically undermine its development by doubting the interest and motivation of the students.

In the design of the programme our view of capabilities included attitudinal factors and metacognitive abilities. In the delivery of the programme recognition of these elements of critical thinking has been uneven. In some parts of the BBus capability is understood as more than mechanistic abilities and includes dispositional modes. A challenge for us is to extend this thinking and the ensuing practice to the balance of the programme.

In order to avoid the pitfalls of pseudo critical thinking (Paul 1993) attention is required to the professional development of teachers so that they develop a shared understanding of what critical thinking means in their discipline, what teaching and learning strategies are needed for its development and what intellectual standards can be used to assess it. If we are to avoid contradictory or double messages it also affects the way we relate to each other as colleagues. Critical thinking practice should not be confined to the classroom! It has to be the way we do things.

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